

TECHNOLOGY SAFETY DATA SHEET
PENTEK SCABBLING CONCRETE TECHNOLOGY
(MOOSE[®], SQUIRREL[®]-I, and SQUIRREL[®]-III)

SECTION 1: TECHNOLOGY IDENTITY

Manufacturer's Name and Address: Pentek , Inc. 1026 Fourth Ave. Coraopolis, Pa 15108	Emergency Contact: (412)262-0725
	Information Contact: (412)262-0725
	Date Prepared:
Other Names: Pentek Scabblers MOOSE [®] SQUIRREL [®] -I and SQUIRREL [®] -III	Signature of Preparer:

SECTION 2: PROCESS DESCRIPTION

The Pentek concrete scabbling system consists of the MOOSE[®] scabblers, the SQUIRREL[®]-I and SQUIRREL[®]-III scabblers, and VAC-PAC[®]. The scabblers are designed to scarify concrete floors and slabs using cross section, tungsten carbide tipped bits. The bits are designed to remove concrete in 3/8 inch increments. The bits are either 9-tooth or demolition type. The scabblers are used with a vacuum system designed to collect and filter the concrete dust and contamination that is removed from the surface.

The MOOSE[®] is a remotely operated scabblers designed to scarify large concrete floors and slabs. It utilizes a single-step floor scarification process with integral

SECTION 2: PROCESS DESCRIPTION (Continued)

vacuum control with capture at the cutting tool surface. The MOOSE[®] removes coatings and concrete substrate in increments of 1/16 to 3/16-inch. Three sub-systems comprise the MOOSE[®] scabblers: the scabbling head assembly, the on-board high efficiency particulate filter (HEPA) vacuum system, and the six-wheeled chassis. The scabbling head houses seven independent reciprocating tungsten carbide-tipped bits. The bits pulverize the surface by delivering 1200 hammer impacts per minute through pistons driven by compressed air. Dust and debris are captured by the two-stage positive filtration HEPA vacuum system that deposits the waste directly into an on-board 23-gallon waste drum. The first stage filters have a 99.5% efficiency at 1 micron and a second stage HEPA efficiency of 99.97% at 0.3 microns. The first stage filters or roughing filters are continuously and automatically cleaned by reverse-flow pulses of high pressure air. The system also has a full-drum alarm. The six-wheeled chassis is powered by dual DC motors. Independent skid steering allows 360 degrees pirouetting around its geometric center.

The SQUIRREL[®]-I and SQUIRREL[®]-III are manually operated pneumatic scabblers designed to be used with the VAC-PAC system as described above.

SECTION 3: PROCESS DIAGRAM

A process diagram is not available from the manufacturer for the Pentek concrete scabbling system. To better understand the process for using the , MOOSE[®], SQUIRREL[®]-I and SQUIRREL[®]-III a process diagram should be obtained from the manufacturer of the scabbling equipment before use.



SECTION 4: CONTAMINANTS AND MEDIA

The technology has the potential to cause concrete dust and associated contaminants to become airborne. Specific contaminants need to be evaluated on a site by site, job by job basis to determine the potential for exposure.

SECTION 5: ASSOCIATED SAFETY HAZARDS

Probability of Occurrence of Hazard:

- 1 Hazard may be present but not expected over background level
- 2 Some level of hazard above background level known to be present
- 3 High hazard potential
- 4 Potential for imminent danger to life and health

SECTION 5: ASSOCIATED SAFETY HAZARDS

A. ELECTRICAL (LOCKOUT/TAGOUT)

RISK RATING: 2

Technology has the potential for electrical hazards. Assure proper grounding, use of ground fault circuit interrupters, and stress relievers on all equipment. Compliance with applicable electrical standards and codes and lockout/tagout procedures must be followed to assure the safety of personnel.

B. FIRE AND EXPLOSION

RISK RATING: 1

Technology does not pose this hazard in and of itself but can not be used in an explosive environment due to the potential for sparking.

C. CONFINED SPACE ENTRY

RISK RATING: 1

Not part of this technology unless the specific location where scabbler is being used is a confined space. In this case, confined space procedures would need to be followed.

D. MECHANICAL HAZARDS

RISK RATING: 4

Use of large equipment and hand tools may pose the following: pinch points, struck by, caught between, and fall from above hazards. The area of the horizontal cylinder on the scabbling head of the MOOSE[®] presents the potential for crushing injuries.

E. PRESSURE HAZARDS

RISK RATING: 3

Technology presents hazards from air lines and hydraulic lines.

F. TRIPPING AND FALLING

RISK RATING: 4

Vacuum hoses, electrical cords, and air lines present tripping hazards.

G. LADDERS AND PLATFORMS

RISK RATING: N/A

Not part of this technology.

H. MOVING VEHICLES

RISK RATING: 3

The presence of multiple pieces of mobile equipment (used to unload and load the technology) in relationship to a small area of operation may pose a significant danger. Sufficient warning devices such as horn, bells, lights and back up alarms should be utilized. Personnel should be trained to work with and around moving equipment.

SECTION 5: ASSOCIATED SAFETY HAZARDS	
I. BURIED UTILITIES, DRUMS, AND TANKS	RISK RATING: N/A
Not part of this technology.	
J. PROTRUDING OBJECTS	RISK RATING: N/A
Not part of this technology.	
K. GAS CYLINDERS	RISK RATING: 3
If compressed gas such as nitrogen is used as power to move MOOSE [®] , associated hazards will be present.	
L. TRENCHING AND EXCAVATIONS	RISK RATING: N/A
Not part of this technology.	
M. OVERHEAD LIFTS	RISK RATING: 4
Unloading and loading of technology may require overhead lifts or the use of a forklift. Proper precautions indicated.	
N. OVERHEAD HAZARDS	RISK RATING: 2
Would only be present if a crane were required to unload or load equipment.	

SECTION 6: ASSOCIATED HEALTH HAZARDS	
A. INHALATION HAZARD	RISK RATING: 3
Technology produces dust from the concrete and concrete contamination. Specific hazards will be identified from the site characterization. Evaluation of total dust and/or respirable dust generated should be conducted.	
B. SKIN ABSORPTION	RISK RATING: 2
This would be dependent on the contaminants at the site and would be identified by the site characterization. Hydraulic fluid could present a hazard.	

SECTION 6: ASSOCIATED HEALTH HAZARDS

C. HEAT STRESS

RISK RATING: 4

Ambient atmospheric conditions correlated with PPE levels must be considered.

D. NOISE

RISK RATING: 4

The technology presents a high noise hazard.

E. NON-IONIZING RADIATION

RISK RATING: N/A

Not part of this technology.

F. IONIZING RADIATION

RISK RATING: 1-3

None associated with this technology but the contaminated concrete may present a significant radiation exposure. This will be identified by the site characterization.

G. COLD STRESS

RISK RATING: 1

Technology does not produce a hazard, but ambient conditions need to be considered.

H. ERGONOMIC HAZARDS

RISK RATING: 3

Poses ergonomic hazards associated with lifting, bending, twisting, stooping, kneeling. These may cause injury/strain to the back, knees, hips, and/or legs.

I. OTHER Arm-hand vibration and whole-body vibration

RISK RATING: 3

Poses a hazard due to arm-hand vibration from operating the SQUIRREL[®] I and SQUIRREL[®] III. This may lead to associated health problems such as Raynaud's Syndrome.

MOOSE[®] has the potential to vibrate the surface it is scabbling, therefore, whole-body vibration needs to be considered.

SECTION 7: PHASE ANALYSIS

A. CONSTRUCTION/START-UP

The set-up/start-up phase presents several hazards including pinch points, slips/trips/falls, struck by/caught between, falling from above, muscular/back injury, and electrical. A pressure hazard can be present if compressed nitrogen is required to unload MOOSE[®].

SECTION 7: PHASE ANALYSIS

B. OPERATION

The operational phase presents several hazards including exposure to contaminant (airborne and from the surface), arm-hand vibration, muscular/back injury, whole-body vibration, mechanical hazards, exposure to hydraulic fluid and diesel fumes, and exposure to noise.

C. MAINTENANCE

The maintenance phase presents several hazards including pinch points, slips/trips/falls, struck by/caught between, muscular/back injury, electrical, exposure to contaminants (airborne and from the surface), exposure to hydraulic fluids, and accidental activation of moving parts.

D. DECOMMISSIONING

The decommissioning phase presents several hazards including exposure to the contaminant, pinch points, slips/trips/falls, and muscular/back injury.

SECTION 8: HEALTH AND SAFETY PLAN REQUIRED ELEMENTS

A. AIR MONITORING

When concrete is scabbled, total dust and respirable dust need to be monitored. Monitoring also needs to be done for specific concrete contaminants and may need to be conducted for specific constituents of the concrete such as silica. In addition, noise monitoring is essential.

B. WORKER TRAINING

Training that would apply in this case may include but not be limited to: HAZWOPER (Hazardous Waste Operations and Emergency Response), HAZCOM (Hazard Communication), Respiratory Protection, Hearing Conservation, Ergonomics (proper lifting, bending, stooping, kneeling, arm-hand vibration, whole-body vibration), Heat stress (learning to recognize signs and symptoms), Personal Protective Equipment, Job specific training for equipment operation, CPR/First Aid/Emergency Response/Blood-borne Pathogens, Electrical Safety, Lockout/Tagout, Radiation Safety, Hand Signal Communication, Construction Safety (OSHA 500) and or General Industry Safety (OSHA 501)

C. EMERGENCY RESPONSE

Emergency response planning for a site needs to assure adequate coverage for

SECTION 8: HEALTH AND SAFETY PLAN REQUIRED ELEMENTS

hazards described in the TSDS. Having as many workers as possible trained in CPR and first aid is recommended.

D. MEDICAL SURVEILLANCE

Evaluation of personnel's general health with emphasis on the cardiovascular and respiratory system, back, and peripheral nervous system. Annual audiograms.

E. INFORMATIONAL PROGRAM

Workers must be trained in specific operation of equipment before use.

SECTION 9: COMMENTS AND SPECIAL CONSIDERATIONS

Due to the high levels of noise produced, communication may become difficult. Personnel working in the area should be familiar with and use hand signals as necessary.

Only personnel who have been adequately trained in the operation of this technology should be permitted to operate and/or work with the equipment.